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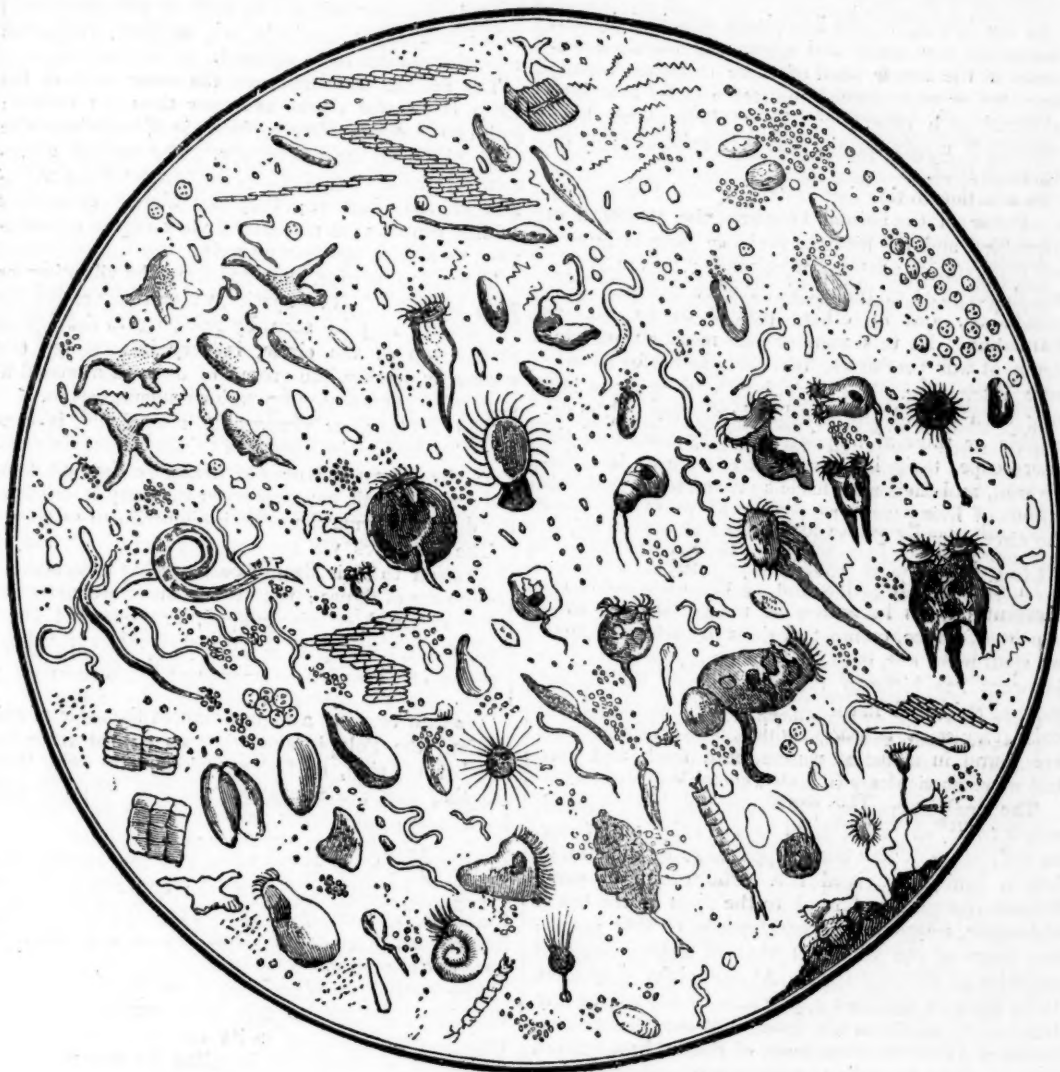
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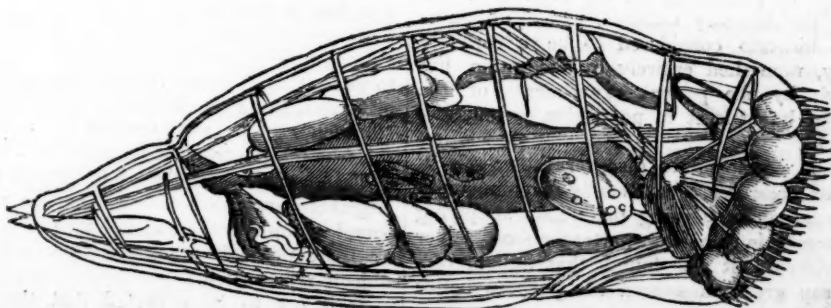
PRICE
ONE PENNY.

UNDER THE DIRECTION OF THE COMMITTEE OF GENERAL LITERATURE AND EDUCATION
APPOINTED BY THE SOCIETY FOR PROMOTING CHRISTIAN KNOWLEDGE.

THE MICROSCOPE.



Animalcule found in Stagnant Water.



A representation of the VORTICELLA BENTIA; magnified One Hundred and Forty-four Thousand Four Hundred Times.

THE MICROSCOPE.

No. I.

THE invention of the Microscope disclosed to the eye of the philosopher, the naturalist, and the curious inquirer into the wonders of the creation, a new world of minute animals, the existence of which was until that time unknown. By the power of this instrument, it was discovered that every drop of impure water contained thousands of living creatures, some of which, although invisible to the naked eye, yet bore the same proportion to others, still more minute, that the gigantic whale does to the smallest inhabitant of the deep.

In the infancy of the knowledge acquired by this instrument, the rapid and apparently hostile movements of the larger kind of these creatures among their smaller companions, induced a belief that they devoured each other; but later observations have rendered it nearly certain that they exist entirely on vegetable food.

In addition to this demonstration of the immensity in number of the animal kingdom, the structure of vegetables, and the hitherto invisible parts of human and comparative anatomy were made clear to the eye, and the theories of philosophers were in some cases established, and in others proved to be without foundation. In this manner this most curious instrument was productive of effects as useful as they were interesting. The corallines and sponges had long been considered as belonging either to the vegetable or mineral kingdom, but by means of the microscope, their little architects were at last discovered, and their minute cells proved to be the habitations of living creatures; and the great theory of the circulation of the blood was made as palpable to the eye, as the most simple visible truth.

In directing the attention of the observer to the different objects in nature or art, which are most worthy of notice, or most curious in their structure, we shall point out, in the first instance, such as occur in what has hitherto been considered the lowest state of animated nature,—the infusoriæ, or animalculæ (*very small animals*), which, as already noticed, are found in stagnant waters, both fresh and salt, but more particularly in stale vegetable infusions.

The smallest creature yet discovered, is the monad, *monas termo*, so called from *monas*, unity, and *terma*, an end; since it has been supposed to be the end, or lowest limit, of animal life. The group of small figures like grains of sand to the right of the top of the circle, represents several species of this genus; the form of the whole is that of half-transparent globules of different sizes. At first sight, they seem to be without the least appearance of mouth, or any trace of organization whatever; but the recent discoveries of Professor Ehrenberg, of Berlin, have proved that we have no right to conclude organization does not exist, merely because our limited powers of sight are incapable of perceiving it; for even this, the smallest of the infusory animals, which all naturalists had hitherto considered to be a perfectly simple body, nourished entirely by absorption, has been proved, by the patient experiments of Dr. Ehrenberg, to be at least in possession of four distinct stomachs.

The method employed to discover the vessels in these curious creatures, is extremely ingenious and simple; it consists in nothing more than supplying them with vegetable colouring-matter for food. After many experiments, it was found that indigo, carmine, and sap green, answered the purpose better than any other substance.

The method of applying it is this:—a drop of

water containing the animalculæ, being placed upon the slip of glass usually employed when examining these objects, a small quantity of a solution of the colouring-matter is added to it, by means of a camel-hair pencil. Another drop of clear water is then placed near the first, and this last drop is brought under the microscope; so that, by drawing a fine point from one to the other, some of the animalculæ from the coloured drop will escape into the clear water, and their stomachs and alimentary canal being filled with the coloured liquid, will be thus rendered perfectly visible.

In employing these coloured liquids, it is absolutely necessary they should be perfectly pure and unadulterated; the least mixture of metallic substances will either kill the animalculæ, or, at least, cause the colouring-matter to be rejected.

The *volvox*, or *whirler*, on the same side of the circle, but lower down, is larger than the monad; and one species, *volvox globator*, is of sufficient size to be visible to the naked eye. The curious movement of these creatures is sure to attract the attention of the observer; they are almost constantly rolling round, with a greater or less degree of swiftness, as if turning upon an axis.

The genus *vibron*, so called from the vibrating, or wavy motion of all its species, which differ extremely in form, as may be seen by referring to the figures at the top of the circle, is very interesting; one species appearing like groups of animals attached to each other, and assuming various arrangements.

The *Proteus*, or changeable animalcula, is continually altering its shape in the most curious manner; the figures in the engraving, on the left, near the top, will explain, much better than any description, the different forms the same individual can assume.

The creatures we have already described, are, in proportion to their size, of considerable thickness or plumpness of figure; the next in order are comparatively flattened, or else cupped, or somewhat like a shallow bag; and some are furnished with appendages like tails, or partially covered with the appearance of hair*.

We now come to a higher class in the scale of animation, the *Polypi*, *many feet*, so named from the number of cirri, or feelers, which surround their mouths, and are figuratively termed feet; some are fixed to solid substances, and others are perfectly free in their movements. An instance of the former is shown on the right hand at the bottom of the circle; it is called *Vorticella senta*, and the engraving beneath the circle is a greatly-magnified representation of the internal arrangement of its organs of life, as shown by Dr. Ehrenberg.

The *Rotifer*, or *Wheel-insect*, on the right hand in the circle, belongs to this class, and is extremely curious and puzzling in its construction; when in motion, it seems to be impelled by means of two wheels, one on each side of the front part of the body; these wheels appear as if they turned upon an axis, but if this were really the case, it would imply their complete want of connexion with the body of the animal, a thing utterly impossible. The truth seems to be that the minute feelers, with which the fellows of these delicate wheels are furnished, are moved with so much rapidity as to deceive the eye, and prevent the true motion from being perceived.

The slender worm-shaped figures on the left of the engraving, are called *Microscopic Eels*, and are readily found in sour paste or stale vinegar; they appear to be more perfectly organized than any of the other objects represented.

It is not to be expected that the whole of the

* See the lower part of the circle,

creatures represented in the circle are to be found in one drop of water, or even at one season of the year, or in the same country; it is only by constant attention to the subject that the observer can be expected to meet with the greater number of the forms represented above. The readiest mode of obtaining them is by placing in a number of open-mouthed phials, half filled with water, bits of straw, peppermint, dead leaves, and other vegetable substances, and after a few days, if the weather is mild, or the room in which they are placed tolerably warm, a drop taken from any of them, and placed under the microscope, will exhibit some of these curious creatures; and, in general, the longer the infusions are kept, the more numerous the animalculæ will be; stagnant puddles in leaden gutters are the most likely places to meet with the wheel insects, especially in warm weather.

As, when speaking of any object, allusion is frequently made to the number of times it is magnified, it will be well always to bear in mind the meaning of this expression. When any thing is said to be magnified nine times, that is, so as to appear nine times its real size, it is not to be supposed that the object will appear nine times the length, and nine times the width, for that would be eighty-one times its natural size; but three times its length, and three times its width; this may be illustrated by the annexed diagram.



The square A is the original size of the object which is magnified to three times its length, and as much in width; but, by inspecting the diagram, it will be clear that the representation is nine times the natural size. The same rule,

of course, applies to every other proportion.

To discover how much an object is magnified, we have to divide the number of inches at which it can be seen most clearly by the naked eye (which is on the average eight), by the distance at which the image is perfect under the magnifying glass; so that if the distance at which we are obliged to hold the glass from the object is one inch, it is magnified eight times in length, and eight times in height, or actually sixty-four times. If the distance is half an inch, its appearance will be twice that size, and so on.

The above calculation only holds good when single lenses or glasses are employed: to calculate with exactness the magnifying power of a compound microscope, is not quite so simple an operation, and it is necessary to know the foci of the different lenses of which the instrument is composed.

A method, however, which approaches nearly to the truth, may be very easily put in practice; it is as follows. When observing the magnified appearance of the object through the microscope with one eye, let the other, instead of being closed, be directed to a common rule, marked with inches, and held at such a distance as to be clearly visible, that is, about eight inches; then, by comparing the enlarged appearance seen by one eye, with the inches as seen at the same time on the rule by the other, the power of the instrument may at once be seen, if the real size of the object is known. Thus, if its length is one quarter of an inch, and it appears, when seen through the glass, to be equal to two inches, as seen on the rule by the naked eye, it is clear that it is magnified eight times in length, or sixty-four times in magnitude.

He that smartens for speaking truth hath a plaster in his own conscience.—FULLER.

We are not disarmed by being disincumbered of our passions.—BURKE.

HOW HE MUST LIVE THAT LIVES WELL.

HE who neglects his duty to himself, his neighbour, or his God, fails in something that should make life commendable. For ourselves, we need order; for our neighbour, charity; and for our God, our reverence and humility; and these are so linked one to another, that he who lives orderly cannot but be acceptable, both to God and his fellow-creatures. Nothing jars the world's harmony like men who break their ranks. One turbulent spirit will disturb even the calmest kingdom. We may see the beauty of order in nothing more than in some princely procession; and though, indeed, the circumstances and ceremonies belonging to state are not intrinsically necessary to government, yet, by a secret working in the minds of men, they add a reverence to it.

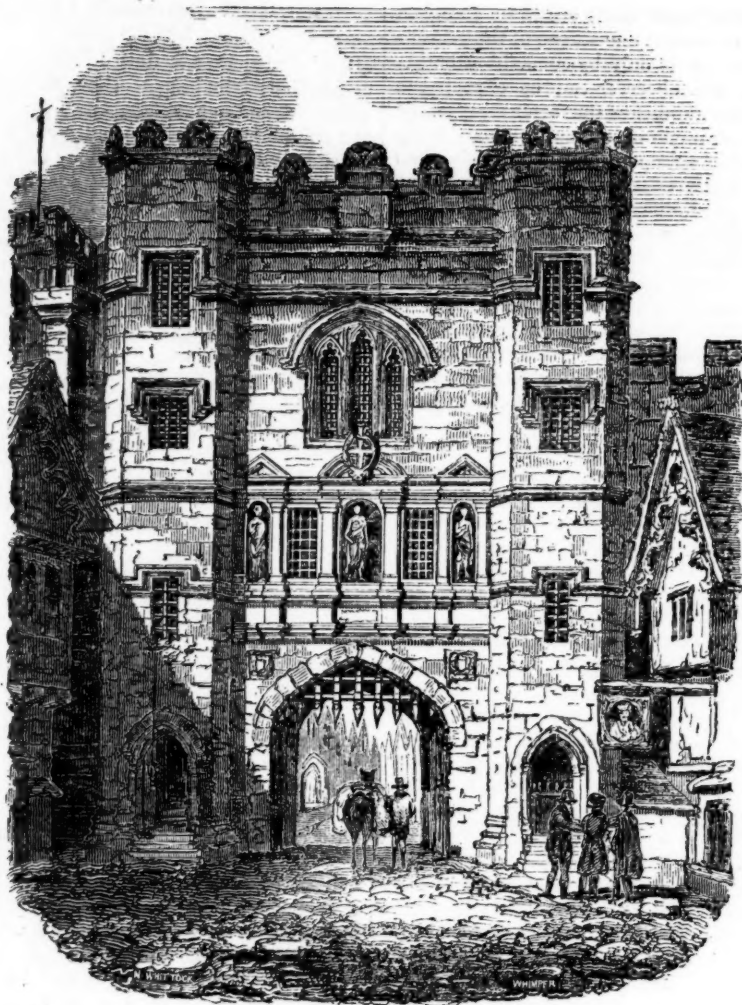
Did every man keep his own life as he ought, what a state of concord would a world, a kingdom, a city, a family be? But, being so infinitely disjointed, it is necessary that some should afford their help, and be charitable. If none were to repair the breaches, how soon would all lie levelled in demolishments? Love is so excellent, that, though it be but to one's self alone, yet others partake and find the benefit. Without charity a man cannot be sociable, and take away that, and there is little else that a man has to do in the world. How pleasant can good company make his life beneath! Certainly, if there be any thing sweet in mere humanity, it is in the intercourses of beloved society, when every one shall be each other's counsellor, each other's friend, and mine, and solace: and such a life as this I take to be the most pleasing to God, as well as to man. But yet this cannot be truly pleasing, unless a man be careful to give to God the honour that he owes him.

When a man shall do these things, and perform his duty to his Maker, he shall find a peace within, which shall fit him for whatsoever befalls. He shall not fear himself, for he knows his course is order. He shall not fear the world, for he knows he has done nothing to injure it. He shall not be afraid of heaven, for he knows he there shall find the favour of a servant, of a son, and be protected against the malice and spleen of Satan. Let me live thus, and I care not though the world should mock at my innocence.

FELTHAM'S Resolves.

ST. JEROME relates that "the blessed Apostle John, living at Ephesus to extreme old age, was with difficulty carried to church in the arms of the disciples, and being unable to make a long discourse, every time they assembled, was wont to say nothing but this, 'Little children, love one another.' At length, the disciples and brethren who attended, tired of hearing so often the same thing, said, 'Sir, why do you always say this?' Who then made this answer, worthy of himself, 'Because it is the Lord's command; and if that alone be done, it is sufficient.'—DR. LARDNER.

FRIENDSHIP is not inconsistent with the spirit and principles of the Gospel. It is not indeed the subject of an injunction, as if the formation of particular attachments were a duty to be practised: but it as certainly is not forbidden, as if it were a vice or a weakness to be avoided. In several passages of our Lord's teaching, the existence of friendship, and the natural disposition of the heart of man towards it, are recognised plainly and with complacency: and the example of his conduct, in admitting St. John to a special share of his intimacy and regard, is a proof that friendship needs not to be discouraged. Charity for all men, brotherly love for all our brethren in Christ, is unquestionably prescribed to us: but such regard and good-will for all is not incompatible with a higher degree of affection for some. And surely if amongst the twelve, whom our Lord selected for his constant companions, there was one peculiarly distinguished as "the disciple whom he loved," we need not scruple to love some more than others.—BISHOP MANT.



NEWGATE.

THE annexed engraving is a representation of one of the principal entrances into London when it was a city begirt with walls, and is not only interesting as a picturesque view of an old portal of the city, but from its having been the principal prison of London, from the reign of Henry the Second to the beginning of the reign of George the Third.

The account given by Stowe, in his *Chronicles of London*, of the cause of the erection of this New-gate,—a name that the prison retains at the present time,—is so circumstantial and curious, that we cannot state the origin of this structure better than in his own words.

"This Gate was first erected about the reign of Henry the First, or of King Stephen, upon this occasion: the cathedral church of St. Paul being burnt about the year 1086, in the reign of William the Conqueror, Mauritiu, then Bishop of London, repaired not the old church, as some have supposed, but began the foundation of a new work, such as men then judged would never have been performed, it was so wonderful for height, length, and breadth; as also in respect it was raised upon arches or vaults,—a kind of workmanship brought in by the Normans, and never known to the artificers of this land before that time. After Mauritiu, Richard Beaumore did wonderfully advance the work of the said church, purchasing the large streets and lanes round about, wherein were wont to dwell many lay people,

which ground he began to compass about with a strong wall of stone and gates.

By means of this increase of the church territory, the high and large street stretching from Aldgate, in the east, to Ludgate, in the west, was in this place so crossed and stopped up, that the carriages through the city westward were forced to pass without the said church-yard wall, on the north side through Paternoster-row, and then south, down Ave Maria-lane, and again west, through Bowyer-row, to Ludgate; which passage, by reason of so often turning, was very cumbersome and dangerous to man and beast.

"For remedy whereof a New Gate was made, and so called, by which men and cattle, with all manner of carriages, might pass more directly from Aldgate, through West Cheap, by St. Paul's, and from thence to any part westward over Holborne-bridge, and through Iseldon to any part north and west."

This structure not only served as a portal to the city, but, like the other gates, the apartments above and on each side of it were used as places of confinement; and, as the New Gate was particularly strong and secure, criminals of the highest order were confined within its walls. Henry the Third, in the year 1218, issued an order to the sheriffs of London, to repair the prison called Newgate, for the safe keeping of his prisoners, promising the charges should be allowed to them upon their account in the Exchequer. In this prison, Robert Baldock, Chan-

cellor to Edward the Third, was confined, and ended his days miserably.

This gate continued without alteration, with the exception of repairs, which, from the frequent orders made to the sheriffs, were seldom greatly attended to. The number of prisoners also increased with the increase of population, so that, at the time of Sir Richard Whittington's mayoralty, in 1419, it had become so dilapidated and inconvenient, that this public-spirited magistrate determined to rebuild it; but dying shortly afterwards, he left funds for that purpose; and, in 1423, the City "petitioned the King's Council for leave to remove the prisoners from Newgate, in order to rebuild that prison, according to the will of Sir Richard Whittington, sometime Lord Mayor of this city; and accordingly they gave leave to John Coventry, John Carpenter, and others, executors of Sir Richard Whittington to do it."

The annexed engraving represents the Newgate erected by Sir Richard Whittington's executors, which for strength, beauty, and convenience, far surpassed the other gates of London. It was not only decorated with the city arms, but with the arms of Sir Richard Whittington, and the Company to which he belonged. The shields were inserted in sunk panels, on either side of the gate. The west front was embellished with four emblematical figures of Liberty, Peace, Severity, and Plenty; and on the east front were three figures in niches, Justice, Fortitude, and Prudence.

This building was destroyed in the great fire of 1666; but shortly rebuilt on nearly the same plan; the space was far too small for the purpose for which it was used, and the miserable inmates were frequently visited with contagion, and disease, and every other kind of evil, that want of air, putrid water, murky dungeons, and consummate wretchedness could produce; in many instances the contagion, called the gaol distemper, spread beyond the walls of the prison; in 1750, it proved fatal to the Lord Mayor, Sir Samuel Pennant, Sir D. Lambert, an alderman; Sir Thomas Abney, a judge of the Common Pleas; Mr. Baron Clark, and many others who were in attendance at the sessions.

This event attracted the attention of the Government, and 50,000*l.* was granted for building a new prison, which was erected between 1778 and 1780. The old gate, which had been the receptacle of misery and crime for so many centuries, was then taken down. During the riots which disgraced London in the latter year, the whole of the interior of the prison was destroyed by fire, but the building was shortly afterwards repaired, and completed in its present form.

DIFFIDENCE.—The celebrated Aboo Yûsuph, who was chief judge of Bagdad, in the reign of the Caliph Hâdee, was a very remarkable instance of that humility which distinguishes true wisdom. His sense of his own deficiencies often led him to entertain doubts, where men of less knowledge, and more presumption, were decided.

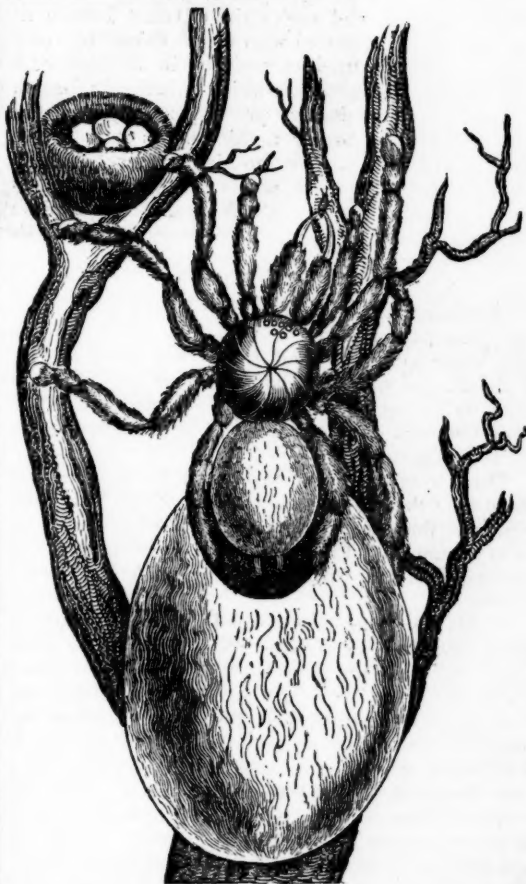
"It is related of this judge, that on one occasion, after a very patient investigation of facts, he declared that his knowledge was not competent to decide upon the case before him." "Pray, do you expect," said a pert courtier, who heard this declaration, "that the Caliph is to pay your ignorance?" "I do not," was the mild reply; "the Caliph pays me, and well, for what I do know; if he were to attempt to pay me for what I do not know, the treasures of his empire would not suffice."—MALCOLM'S *Persia*.

We find in God all the excellencies of light, truth, wisdom, greatness, goodness and life. Light gives joy and gladness, truth gives satisfaction; wisdom gives learning and instruction; greatness excites admiration; goodness produces love and gratitude; life gives immortality and ensures enjoyment.—JONES of *Nayland*.

THE BIRD SPIDER.—(*Mygale avicularia*.)

WE are indebted to Madame Merian for the original of the engraving below: the creature it represents, is found in considerable numbers in Surinam and the neighbouring countries; it is extremely formidable in appearance, and if any reliance could be placed on the accounts of the natives, equally to be dreaded in reality. Its colour is of a reddish or brownish black, and the texture of the skin like the softest velvet; its nest, although much larger, is in form like the cocoon of the silk-worm, and in the same manner spun by the tenant itself.

Unfortunately for spiders of all descriptions, their form and appearance have every where been productive of so much dislike, that all their bad qualities have been exaggerated, and their useful or interesting properties overlooked. No one can have noticed the formation of a spider's web, without having been struck with the surprising skill displayed by the creature in its construction. The most experienced sailor could not contrive an arrangement of cordage, so perfectly adapted to the purposes of strength and support, as that employed by the spider in stretching its slender net across the garden pathway. Its utility may be appreciated by those who, in the hot climates where the species represented below are found, have noticed the ravages committed by a large kind of ants, which appear in myriads, and commit great devastation. Upon these, the Bird Spider preys, and keeps the numbers of these destructive insects in some manner within bounds.



The Bird Spider.

In want of this its more natural food, the spider destroys the eggs of the humming-bird, and sometimes the birds themselves; and from this habit it takes its name.

Spiders are described by naturalists as distinguished from other groups of animals that approach them in form, by all possessing eight legs; having their chest united to the head, and their whole body consequently consisting of two divisions, instead of being formed of three, as in insects; the want of the antennæ or horns, which are found in these last; and the possession of feelers arising near the mouth, armed at the end with a hook, containing in some instances a poisonous liquid, with which they can destroy their prey. They are also provided with from six to eight eyes, arranged in different forms. The Bird Spider, although very destructive among the ants, as already noticed, is sometimes attacked singly by numbers of these warlike insects, and suddenly killed.

HISTORY AND EFFECTS OF SPIRITUOUS LIQUORS.

ARDENT spirit, though sometimes supposed to be a modern discovery, was probably known at a very early period. It is said to have been first made by the Arabians in the middle ages, and in all likelihood may lay claim to a still more remote origin. The spirituous liquor called *arrack* has been manufactured in the island of Java, as well as on the continent of Hindostan, from time immemorial. *Brandy* was made in Sicily at the commencement of the fourteenth century.

Ardent spirits may be mostly comprised under the heads of Rum, Gin, Brandy, and Whisky.

RUM is a prevailing liquor in the West Indies, North America, and such cities of Great Britain as are intimately connected with these regions by commerce. GIN is used extensively in Holland and Switzerland, the countries which principally furnish it, and has found its way pretty generally over the whole of Europe, to say nothing of its manufacture and use in England. BRANDY is chiefly produced in Charente and Languedoc, and is the spirit most commonly found in the south. WHISKY is confined in a great measure to Ireland and Scotland, in which latter country the best has always been made.

GENERAL EFFECTS OF SPIRITS ON THE HUMAN CONSTITUTION.

ALCOHOL is the principle of intoxication in all liquors. It is this which gives to wine, ale, and spirits, their characteristic properties. In the natural state it is so pungent that it could not be received into the stomach, even in moderate quantities, without producing death. It can, therefore, only be used in a state of dilution; and in this state we have it, from the strongest ardent spirits to simple small beer. Alcohol being most concentrated in ardent spirits, they consequently act more rapidly upon the constitution, are more inflammatory, and intoxicate sooner, than the milder liquors. When taken in an over dose, they act almost instantaneously; extinguishing the senses, and overcoming the whole body with a sudden stupor. When swallowed raw, in the form of a dram, they excite a glow of heat in the throat and stomach, succeeded, in those who are not much accustomed to their use, by a flushing of the countenance, and a copious discharge of tears. Habitual dram-drinkers almost always become emaciated, their eyes hollow and glazed, the cheeks fall in, and premature old age overtakes them; they have an insatiable desire for a morning dram, instead of their breakfast, of which they partake but sparingly, and with a languid appetite. Of all spirituous liquors *brandy* kills soonest, it takes most rapidly to the head, and, more readily than the others, tinges the face to a crimson or livid hue. *Rum* is probably the next in point of fatality, and after that *gin* and *whisky*.

In speaking, however, of the pernicious qualities of gin, in comparison with those of other liquors, gin must be understood in its pure condition, and not in that detestable and poisonous state of adulteration, in which such vast quantities are vended by the gin-shop keepers of London, and other populous places.

The effects of spirituous liquors upon the human body, in producing diseases, are sometimes gradual. A strong constitution, especially if it be assisted with constant and hard labour, may resist the destructive effects for many years; but, in general, some organ becomes altered in structure, its functions suspended or deranged, and a long train of symptoms and diseases induced, to the certain destruction of the patient.

The *Liver*. One of the most common consequences of drunkenness from spirituous liquors, is *acute inflammation*. This may attack any organ, but it is principally confined to the brain, stomach, and liver. But the *inflammation* from drunkenness, is in a great majority of cases *chronic*, and the part which, in nine cases out of ten, suffers, is the liver. In confirmed toppers, it never escapes, though it withstands disease better than any other part excepting the spleen. Sometimes by a slow chronic action it becomes *enlarged* to double its natural size, and is totally *disorganized*, still the victim suffers comparatively little. The *bile* is not secreted in due quantity or quality, hence defective digestion; then follows *jaundice*, merely as a symptom of the disease, and the general debility of the system induces *universal dropsy*. It is well known that some of the London fowl-dealers mix gin with the food of the birds, by which means the livers are greatly enlarged.

The *Stomach*, like the liver, is more subject to *chronic* than *acute* inflammation. It is also apt to get hardened and thickened, from long-continued slow action going on within its substance,—it may then be felt like a hard cricket-ball beneath the ribs. *Indigestion* or *spasm* frequently arise from imperfect action of this organ, but when organic derangement takes place, they are constant attendants, and it is extremely difficult to retain food on the stomach in this state.

The *Brain*. Inflammation of this organ may immediately follow excess in drinking, or it may arise secondarily from an excess of irritation being applied to the body during the stage of debility. Dr. Armstrong says, that sometimes a chronic inflammation comes on, the brain gets diseased, is either unnaturally hard, or of a morbid softness. Under these circumstances, there is a strong risk of *apoplexy*. Hence also, *mental debasement*, loss of memory, and gradual extinction of the intellectual powers. The *blood* is very dark, and the *breath* and *perspiration* have a spirituous odour, the former invariably.

The *Eyes* may be affected with either acute or chronic inflammation, are red, watery, and glassy.

The appearance of the *Lips* is loose, gross, and sensual, betraying at once the drunkard.

The *Nose* becomes enlarged, red, and fiery, covered with small pimples, of a deep crimson hue.

Inflammation of the intestines, kidney and bladder, are frequent.

These are some of the effects of dram-drinking; the list of diseases which are thereby induced, might be greatly increased; in fact, Dr. Paris has asserted, that "*more than half of all our chronical cases are caused solely by spirits; by spirits all diseases are aggravated, and in the depraved constitutions of their victims, simple cuts degenerate into foul and sloughy ulcers.*" Dr. Darwin remarks, that all diseases from drinking spirituous or fermented liquors become hereditary, even to the third generation, gradually increasing, if the cause be continued, till the family becomes extinct.

STORY OF A COTTON GOWN.

SOMETIMES a very humble article, like a very humble individual, has a long, eventful, and interesting tale to tell. A cotton gown is a very humble article, and very easily procured: let us hear what it has to say.

Printed cotton, tolerably good, in respect both of cloth and of colours, may now be bought, by retail, for four pence per yard. Allow for the lining, and thread to make it up, and, as eight yards are enough for an ordinary working gown, it may be on the back of the wearer for less than four shillings. Her grandmother, or at all events, her great-grandmother, could not have procured one under forty shillings; and though that might have been stronger than the modern one, it would not have been so handsome.

Yes, but those were the "good old times;" and so it could be more easily afforded! The "good old times" are always tending to make us dissatisfied with the present, if we refer them to our own young years; for we had then no cares, and enjoyment was fresh, but we have cares now, and our taste for enjoyment is blunted. As to the times "before we were born," all that we can know of them is from hearsay; and hearsay and personal feeling make but a bad comparison. A young woman of our "bad times," gets ten pounds a year in service; she of the "good old times" got but forty shillings. The old one, therefore, could get but one cotton gown in the year, while she of the present times can get fifty; or she may get four, which will serve her well, and have eleven-twelfths of her wages for other purposes.

Has cotton been discovered at home, then? Not at all: cotton in the old times came from Turkey, or if from a greater distance, it was brought in the form in which the carriage of an equal value costs least; namely, as cloth, ready for the wearer. A great part of the cotton now used for common purposes comes from the East Indies, say twenty thousand miles by sea, and it comes unmanufactured, and with some of the refuse in it.

Then, have the materials of ships and the wages of mariners become less costly than they were formerly? No, they are greatly increased; and so is every thing connected with the carriage.

Do our working people earn less wages, or get cheaper food, or less clothing, than the people of India? No. The average of wages in India is not above one twelfth of that in England, and the accommodations and comforts of the people are nearly in the same proportion.

As little have the whole expenses of the matter become lighter; for, in order to put in motion all the plans and machines, and movements, and combinations, which must be at work, and at work in the best manner, before a single gown can be made, as much cost and as much skill are required as were required a few hundreds of years ago to carry on the whole commerce of the world.

The oak for timbers and planking to the ship, if it is equally good and durable, takes as long time, and as much space to grow as formerly; or, if forced to grow faster, it lasts a shorter time, and so there is nothing gained that way. But land has become greatly more valuable, and that increases the price of the home timber. Then there must be fir timber from the Baltic, mahogany and rosewood from tropical America, hemp from Russia, and other articles from almost every part of the world, before the ship can be fit for going to fetch the cotton; there must be carriers to bring the cotton to the port, and agents, and warehousemen and labourers to ship it; and they must all live by their callings. It must also be received and stored at the home port, and carried to

those places where it is wanted. Every raw material which is used in any part of the process, costs more than it did formerly, and every man employed in it gets higher wages. Thus, admitting that there is a pound of cotton in the gown, the obtaining of that pound, if obtained singly, would cost thousands.

The saving is made in the quantity imported and manufactured. Nearly two hundred and fifty millions of pounds are brought to this country in the course of the year; and in that immense quantity the proportion of human labour on a single pound is very small. When the great mass moves, the little masses go lightly; though there were an excellent road all the way, it would take a very strong man four years to walk round the globe; but the earth carries him round every day without his feeling the motion. In like manner, the winds and the waters carry a ship, at the rate of perhaps a hundred miles in a day; and the people on board have nothing to do, as regards the progress of the ship, but to keep the hand on the rudder, and the eye on the compass, sometimes pull a rope, and occasionally measure how high the sun is, or how far the moon is from a star.

This is the principle which runs through all parts of the process. Man is no longer employed in doing for himself all the little that he needs. He makes every thing work, and work in great masses; and so the share of each individual is a mere trifle compared with the mass. The wind is made to work, not only on the waters, but on the land. It turns the mill, it feeds the fire, and blows the bellows. It also draws up water from the sea, from stagnant pools, and from low and damp places, and pours it down on the mountain-tops. Thence it comes rolling down and turns machinery, it glides along and carries boats and barges, or it stands level, and the horse draws a heavy load along its surface. The very moon assists man in getting the cotton gown at a low price; for as the rolling globe shifts the position of the moon's attraction on the waters, these run now this way, now that, and waft their burdens to and fro, but still under the control of man.

But man is not only assisted in his work by the powers of nature; he, as it were, puts tools into their hands, regulates their strength, and causes them to work properly. Among the traditions which have been handed down from the days of the foolish belief in witchcraft, there is one of an old woman who made all the beams and timbers of the house spin yarn like distaffs. That was a mere dream of folly; but knowledge has made the truth more effective without any other aid than that of principles, which can be readily understood by all who will study them. There are not only in the districts where the cotton is manufactured, falling streams, and large kettles of boiling water, spinning with thousands of distaffs, and spinning faster and better by far than human hands can spin, but all over the country similar means are employed in doing the heaviest part of the labour required in the production of the most familiar article connected with the comforts and conveniences of life.

Such is our little portion of the "Story of a Cotton Gown."

SUNDAY TRADING.

A very large number of the Mercantile population of London and its environs have, in various modes, expressed their anxious desire for the complete suppression of Sunday Trading. It has been given in evidence before the Select Committee of the House of Commons appointed to inquire into this subject, that a considerable proportion even of those who now do business on the Sabbath, are extremely solicitous that such an alteration in the Law may be effected, as shall render it absolutely imperative on all to close their Shops, and cease from Mercantile pursuits on that day. They, of course, except the venders of such things as are necessary to the public

health, and which may be required on the Sabbath, in consequence of sickness or casualties.

The Bakers of the Metropolis, (both masters and journeymen,) have petitioned Parliament to interfere for their relief; and the Fishmongers, Poulterers, and other trades, have followed their example. The Butchers have recently formed themselves into an association for the same laudable purpose.

And why has this desire for the universal suppression of Trade on the Sunday been so extensively evinced? Why have associations been formed, and petitions to Parliament adopted, in order to the realization of this object? The reasons are obvious. The Sabbath is a day which God has set apart for bodily rest, and for purposes of moral and religious improvement, and as such, it has been recognised by every Christian nation. It is an interval of relaxation from the toils and cares of life, absolutely necessary to the full possession of health and spirits, and which every man who values those blessings naturally desires. It is a period of leisure, essential to the invigoration of the powers of the human mind, and to the enlargement and elevation of the soul; nor can he who values himself upon his superiority, as a rational being, to the brutes that perish, and who desires to maintain that superiority, be for a moment indifferent to its possession and improvement. It is, moreover, a season of tranquillity highly favourable to the cultivation of morality and religion in individuals, in families, and in the nation—a season, it is presumed, which every Christian will be anxious to secure both for himself and others.

But of the advantages of the Sabbath, important and valuable as they are, the greater part of the persons who have petitioned Parliament for the prevention of any infringement of the Day of Rest by the prosecution of business, are wholly deprived, and the remainder who enjoy them are exposed, in consequence, to the loss of Trade, not only on the Sunday, but on the other days of the week: at present, either the Sabbath, or more or less of Business must be sacrificed by many Tradesmen. If they sacrifice the Sabbath, they become little better than slaves in a free country, toiling without intermission from day to day, from week to week, and from year to year, at the expense of health, of happiness, and of religion, with all its satisfactions in this life, and its hopes for the life to come. If, on the other hand, they avail themselves of the right of the Sabbath, they are compelled to bear losses, in some instances, of a ruinous amount—losses, be it remembered, frequently occasioned by a conscientious regard to the laws of God and man, and which are sacrifices made at the shrine of patriotism and Christianity.

Were Laws enacted compelling the total suspension of business on the Sunday, those who now purchase provisions on that day would, whether high or low, yield to necessity, and make arrangements for supplying themselves on the Saturday. The principle of religious liberty would be extended, not infringed, by the interference of Parliament in this matter. The Sabbath involves many advantages of a civil nature, and it is a great national blessing; and, therefore, the Senate may legislate, and ought to legislate, in reference to it.

Besides the evils already referred to as resulting from Sunday Trading, there are others of a palpably injurious nature, which justify and require the enactment of more efficient laws than at present exist. The evidence given before the Committee of the House of Commons on this subject clearly shows, that this practice introduces disorder, irregularity, and a total disregard to the Sabbath into families; and therefore, all Masters and Heads of Families are interested in its suppression. It also satisfactorily proves, that the possibility of obtaining supplies on the Sunday morning leads to the late payment of wages on Saturday, and disposes the poor to spend their earnings either on Saturday night or Sunday morning, for the purposes of intemperance; and that, by this means, their families are injured, the trade in the necessities of life is diminished, and the parochial rates are greatly increased. It further demonstrates, that Sunday Trading leads to other modes of Sabbath-breaking, and to the commission of numerous other crimes; and that, in this way, such a general demoralization of the country, and especially of the metropolis and large towns, is produced by it, as must involve the expenditure of a large amount of the national resources, and greatly tend to destroy the best energies of the people.—*Extract from Address of Traders, by the Sunday-Trading Suppression Society.*

ANNIVERSARIES IN MARCH.

MONDAY, 4th.

1194 Died *Saladin*, Sultan of Egypt and Syria, the leader and champion of the Mohammedans against King Richard Cœur de Lion and the Crusaders.

1583 Died *Bernard Gilpin*, a learned divine, and one of the early converts to the Reformation. Educated in the tenets of the church of Rome, and deeply learned, he held a public disputation against John Hooper, who justified his faith at the stake under Henry VIII. Being appointed to hold a similar disputation against the celebrated Peter Martyr, who, at that time, was Divinity Lecturer at Oxford, he set about preparing himself for the task by a renewed and diligent perusal of the Scriptures, as well as the writings of the early fathers; the consequence of which was, that, being "not sorry to be overcome by the truth," he became a sincere convert to the doctrines he was engaged to impeach. He narrowly escaped martyrdom in the reign of Queen Mary; and, in that of her successor, he refused successively the Bishopric of Carlisle and the Provostship of Queen's College, Oxford, at which he had been educated. He died Rector of Houghton-le-Spring, in the county of Durham, at the age of 66, closing, in peace and happiness, a life which had been throughout distinguished by kindness, charity, ceaseless well-doing, and indefatigable attention to the people intrusted to his care.

TUESDAY, 5th.

1493 *Ravenna* taken by Theodoric, King of the Goths, after two years and a half siege.

1534 Death of the celebrated painter, *Antonio Allegri*, called, from the place of his birth, *Correggio*.

1588 Died *Henry I. Prince of Condé*, a devoted leader of the Huguenots, or French Protestants. While yet a boy, Charles IX., to intimidate him into adopting the Roman religion, ordered him to choose at once between "going to mass, death, or the Bastille."—"The first is out of the question," replied he, "between the other two, I leave you to select for me."

1778 Died *Dr. Augustine Arne*, one of the most admired musical composers that England has yet produced.

1827 Died *Alessandro Volta*, whose discoveries in physical science rank among the most important of the last or present century. His greatest invention was the Voltaic Pile, of which it may be said, that it has been as productive of discoveries in Chemistry and Natural Philosophy, as the Telescope in Astronomy, or the Microscope in Natural History.

On the same day also died the *Count de la Place*, the greatest Mathematician and theoretical Astronomer of his time.

WEDNESDAY, 6th.

1714 *Treaty of Rastadt* between Louis XIV. and the German Empire, signed.

1825 Died *Dr. Samuel Parr*, the celebrated Greek scholar.

THURSDAY, 7th.

Dedicated to St. Perpetua, a noble Lady of Carthage, who suffered martyrdom when only twenty-two years of age, A. D. 203, under the persecution of the Emperor Severus.

1755 Died, in the 93rd year of his age, *Thomas Wilson*, for fifty-eight years the pious and venerable Bishop of Sodor and Man. On his first arrival in the island, he found the majority of the natives Christians indeed in name, but in little else. They were profoundly ignorant of the duties imposed upon them by religion or morality, and equally careless in practising even what they did know. The indefatigable exertions of this exemplary prelate, aided by the example of his holy life, soon produced a beneficial change; and he had the satisfaction, before he closed his long career of usefulness, to contemplate, in the improved minds and amended morals of his flock, the happy result of his apostolical labours. To this day his memory is highly revered throughout the island.

1809 Death of *Blanchard*, the celebrated aeronaut.

1810 Died, in his 60th year, *Lord Collingwood*, the friend, companion, and successor of Nelson, near whom he was interred in St. Paul's Cathedral, and a monument erected at the public expense to his memory.

FRIDAY, 8th.

1702 King *William III.* died, at Kensington Palace, in the fifty-second year of his age, and the fourteenth of his reign. After dedicating his youth to the protection of his own country and of Europe in general, against the ambitious encroachments of Louis XIV., he was called to the throne of Great Britain, to rescue that kingdom from the threatened subversion of its liberties and religion by his father-in-law, King James II.

1750 The shock of an earthquake was felt throughout London. It occurred at half-past five in the morning, awaking the inhabitants from their sleep, and frightening many out of their houses.

1803 *Francis Egerton*, Duke of Bridgewater, expired, at his house in Cleveland Row, St. James's. To him this country is indebted for the introduction of navigable canals; the first that was ever constructed in England having been excavated at his expense, to communicate between a colliery belonging to the Duke at Worsley, and the town of Manchester. He has been, in consequence, styled the "Father of Canal Navigation in England."

SATURDAY, 9th.

1413 *Bajazet*, Sultan of the Turks, died, a short time after being defeated and taken prisoner by Tamerlane.

1566 *David Rizzio*, an Italian musician, who had been elevated to the station of private secretary to Mary, Queen of Scots, was assassinated, while sitting at supper with his royal mistress, by her husband, the Earl of Darnley, and several other confederated Scottish nobles. The room in Holyrood Palace, where this tragedy was perpetrated, is still shown to visitors.

SUNDAY, 10th.

THE THIRD SUNDAY IN LENT.

1308 The inhabitants of Switzerland, threw off their allegiance to the House of Austria. In 1315, the republic of the thirteen cantons was completely established.

1668 *Sir John Denham*, the poet, died.

1793 The revolutionary tribunal organized in Paris.

1820 *Benjamin West*, the great historical painter, died, at the advanced age of eighty-two. He was born of Quaker parents, in the state of Pennsylvania, N.A., in 1738. Having exhibited, from his earliest youth, decided talents for painting, he was permitted to follow his studies at Rome, whither he went in 1760, and, about three years after, came to England, where, at the earnest recommendation of Sir Joshua Reynolds, he remained, and passed the remainder of his days.

1826 *John VI.*, King of Portugal, died, aged sixty. He quitted his European dominions on the approach of the French armies, in 1807, and retired with his family to the Brazils; but returned to Portugal in 1821. He was father of Don Pedro and Don Miguel.

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ERRATA.—P. 42, col. 1, line 16, for the column, read the foundation of the column*: line 32, for cove, read core.

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